

## **REMARKS**

Claims 1 – 10 were pending in this application.

Claims 1 - 10 were rejected.

Claims 1, 3, 4, 6 and 7 were amended.

Claim 8 was cancelled.

### **I. 35 USC 103(a) Rejections**

Claim 1-10 were rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,225,893 to Caissie in view of European Patent No. EP0370964 to Pagano in further view of U.S. Patent No. 6,218,643 to Iwata.

The rejected claims include three independent claims, which are Claim 1, Claim 3 and Claim 7. These claims have been amended and are believed to be clearly distinguishable over the cited prior art references, as is explained below.

#### **Claim 1**

Claim 1 sets forth an engine block heating system for an engine having an electric starting circuit. The claimed system has a heating element and a detachable power cord. The power cord attaches to the heating element at a connector port.

A sensor is present **at the connector port** for detecting if the power cord **is physically present**. The sensor detects the physical presence of the power cord, whether or not electricity is flowing through the power cord.

A first terminal connection and a second terminal connection are also provided. Both the first terminal connection and the second terminal connection are connectable to the starting circuit of the engine. A switch is provided that is connected to the sensor, the first terminal

connection and the second terminal connection. The switch selectively connects and disconnects the first terminal connection and the second terminal connection as a result of whether the presence of the power cord is detected by the sensor. When the sensor detects the presence of the power cord, the switch disconnects the first terminal connection and the second terminal connection. Alternatively, when the sensor detects that the power cord is absent, the first terminal connection and the second terminal are interconnected.

The present invention engine heater prevents the engine from starting when the power cord is attached to the engine. It is irrelevant if the power cord is plugged in and is providing electrical power. Rather, it is the mere presence of the power cord that causes the engine block heater to disable the engine.

**The cited Cassie patent** discloses an engine heating system that sounds an alarm if the engine is started while the heater is in operation. As such, the purpose of the Cassie patent is similar to that of the present invention. However, the operation of the Cassie system is very different from that of the present invention.

The Cassie patent detects if the engine starts using a vibration sensor. (Figs 1-8) Alternative, the Cassie patent detects if the vehicle engine has started by detecting if the vehicle alternator is generating electricity. (Figs 9-11)

The Cassie patent makes no disclosure whatsoever concerning any sensor that detects if the power cord of an engine block heater is physically present.

As applied to the specific wording of Claim 1, it can be seen that the Cassie patent does not disclose a sensor at a connector port for detecting when a power cord is physically connected

to the connector port. The Caissie patent does not have either a first or a second terminal connection that are connectable to the electric starting circuit. Finally, the Caissie patent does not disclose a switch that is coupled to power cord sensor for selectively connecting and disconnecting the first terminal connection and the second terminal connection depending upon whether or not the sensor detects the physical presence of a power cord.

To address the deficiencies of the primary Cassie patent, the Examiner cites the Pagano patent and the Iwata patent. **The Pagano patent** discloses a system for controlling the current consumed by the warming plugs within a diesel engine. The Pagano patent makes no disclosure of an engine block heater with a power cord or any type of sensor that detects the physical presence of the power cord.

**The Iwata patent** discloses a system for limiting electrical power consumption of an engine during start-up or during an electrical short. The Iwata patent does not disclose an engine block heater with a power cord or any type of sensor that detects the physical presence of the power cord.

**Consequently, in combination, the Caissie patent, Pagano patent and Iwata patent** all fail to disclose or suggest any type of engine block heater having a sensor that detects the physical presence of a detachable power cord. The combined references also do not disclose any system that can disable a vehicle's engine depending upon whether or not the physical presence of the power cord is detected.

The combined references therefore clearly do not teach or suggest the structure of the present invention being claimed. The Examiner is therefore respectfully requested to withdraw the 35 USC 103 rejection as applied to Claim 1 and its dependent claims.

Claim 3

Claim 3 is an independent claim that sets forth an engine heating system. The engine heating system has an electrical heating element and a power cord for supplying electricity to the electrical heating element. The power cord is selectively detachable from the electrical heating element. A sensor is used to detect if the power cord is physically connected to the electrical heating element.

A switch is coupled to the starting circuit of the vehicle and the sensor. The switch disrupts the starting circuit when the sensor detects that the power cord is physically connected to the electrical heating element.

In combination, the Caissie patent, Pagano patent and Iwata patent all fail to disclose or suggest any type of engine block heater having a sensor that detects the physical presence of a detachable power cord. The combined references also do not disclose any system that can disable a vehicle's engine depending upon whether or not the physical presence of the power cord is detected. The combined reference therefore fails to disclose the system being claimed.

The Examiner is therefore respectfully requested to withdraw the 35 USC 103 rejection as applied to Claim 3 and its dependent claims.

Claim 7

Claim 7 is an independent claim that sets forth a method of disabling the vehicle when a plug-in electrical heating system is in use. The claimed method includes sensing when the plug-in electrical heating system is physically connected to a power cord that is external of the vehicle.

It does not matter if the power cord is providing power or not. The mere presence of the power cord is detected.

The electrical starting circuitry of the vehicle is disrupted when the presence of the power cord is sensed. This prevents the vehicle from starting until the power cord is removed.

The present invention prevents the power cord from an engine block heater from being dragged down the street by a vehicle, even if the power cord is unplugged from a wall receptacle but accidentally left attached to the vehicle.

In combination, the Caissie patent, Pagano patent and Iwata patent all fail to disclose or suggest any type of engine block heater having a sensor that detects the physical presence of a detachable power cord. The combined references also do not disclose any system that can disable a vehicle's engine depending upon whether or not the physical presence of the power cord is detected. The combined reference therefore fails to disclose the claimed method or any system capable of performing the claimed method.

The combined references therefore clearly do not teach or suggest the method being claimed. The Examiner is therefore respectfully requested to withdraw the 35 USC 103 rejection as applied to Claim 7 and its dependent claims.

## **II. DRAWINGS**

The drawings originally filed with this application were informal. Formal drawings will be filed upon receipt of the Notice of Allowance for this application.

## **III. SUMMARY**

Having fully distinguished the pending claims over the cited art, this application is believed to stand in condition for allowance. However, if the Examiner is of the opinion that such action cannot be taken, the Examiner is requested to call the applicant's attorney at (215) 321-6772 in order that any outstanding issues may be resolved without the necessity of issuing a further Office Action.

Respectfully Submitted,



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